IMAGING-PATHOLOGIC CORRELATION / *Gastrointestinal imaging*

# Solitary fibrous tumor of the greater omentum



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## KEYWORDS

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The greater omentum is an anterior vascular fatty apron-like fold that supports the viscera and protects against infections and tumor growth. This explains why the most frequent diseases involving the greater omentum are infectious (tuberculosis, actinomycosis), neoplastic (peritoneal carcinomatosis or primary tumors), vascular (infarction, torsion) [1] or traumatic conditions. We present herein an imaging-pathologic correlation of a rare primary tumor of the greater omentum.

## Observation

A 68-year-old woman presented with invalidating intestinal troubles for several years and left subcostal pain, as well as recurrent episodes of diffuse arthralgia. Her medical history included a myomectomy in 1981 and left breast cancer that was treated by radiotherapy and surgery in 1993. Clinical examination revealed a plethoric and soft abdomen, without any mass or pain on palpation.

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**Figure 1.** Axial view of unenhanced abdominal MDCT shows a well-margined mass (arrow) in front of the left colon, without contact of its anterior wall.

Because the pain was located on the left side of the abdomen, MDCT examination of the abdomen and pelvis was performed before and after injection of iodinated contrast agent during the portal venous phase.

MDCT revealed a mass in the greater omentum. It was a homogeneous rounded mass, with regular borders, isoattenuating before injection (**Fig. 1**), clearly enhanced after contrast injection, globally homogeneous, with a few hypoattenuating areas. It was located in the omentum on the left anterolateral side of the colon, and measured 45 mm in diameter (**Fig. 2**). The mass drained into a dilated omental vein (**Fig. 3**). Neither spread to adjacent organs, nor vascular thrombosis were visible. Imaging findings suggested a non-invasive mesenchymal tumor in the greater omentum.

The tumor was removed by laparoscopic surgery, uneventfully, and the patient was discharged from the hospital after 2 days.



**Figure 2.** Axial view of abdominal MDCT after injection of iodinated contrast agent during the portal venous phase, shows clear enhancement of the mass in the greater omentum (arrow) with in front, a few dilated veins.

Macroscopically, the specimen consisted of a well-circumscribed lesion, beige-pink, with a fasciculated appearance, without necrosis, and with a small greasy fragment (**Fig. 4a**).

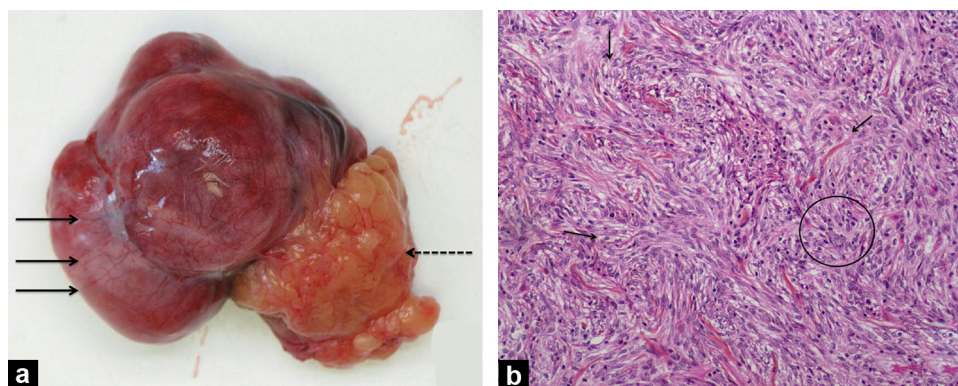
Microscopically, the lesion was composed of a proliferation of fusiform cells, arranged in short fascicles, with no particular orientation. Cells were small with eosinophilic or indistinct cytoplasm. The nuclei were of normal size with rare nuclear atypia, without mitoses. However, there was no hemangiopericytoma-like vascular pattern (**Fig. 4b**).

Immunohistochemical findings were negative for c-kit and DOG1, and intensely positive for CD34 and bcl-2.

Altogether, the histological findings and the immunohistochemical profile indicated the presence of a non-infiltrating solitary fibrous tumor with a very low mitotic index.



**Figure 3.** MDCT during the portal venous phase in sagittal (a) and coronal (b) planes, shows that the mass (arrow) in the greater omentum (with borders highlighted in white) drains into an omental vein (dotted arrow).



**Figure 4.** Macroscopic (a) and microscopic (b) views of resected specimen. Macroscopically: well-margined tumor, with many superficial vessels (arrows), and a greasy fragment (dotted arrow). Microscopically: fusiform cells arranged in short fascicles (arrows) with nuclei of normal size (circle).

## Discussion

The most frequent tumors of the greater omentum correspond to peritoneal carcinomatosis and are often secondary to peritoneal or hematogenous spread of digestive (stomach, pancreas, colon) or ovarian tumors. Primitive tumors arising from the omentum are on the other hand rare, although of various histological patterns (mesothelioma, hemangiopericytoma, stromal tumors, leiomyoma, lipoma, neurofibroma, fibroma, leiomyosarcoma, liposarcoma and fibrosarcoma) [2].

Solitary fibrous tumors, initially described in 1931 as originating from the pleura, are rare mesenchymal tumors that may arise at any location of the human body. To our knowledge, only 6 cases of solitary fibrous tumors of the greater omentum have been described in the literature [3].

Solitary fibrous tumors generally occur during the 5th and 6th decades, with no gender predilection. In most cases, they are discovered by accident, although some cases of associated hypoglycemia (due to the production by tumor cells of an insulin-like growth factor) and concomitant arthralgia have been described.

Solitary fibrous tumors are solid masses, well-circumscribed, encapsulated, and non-infiltrating. They are hypoechoic, highly vascular on color Doppler examination. On CT-scan, the tumors have a density similar to that of muscles, rarely contain calcifications (5% of the cases) and are pedunculated in 30 to 50% of the cases. At MRI, they showed iso-signal intensity on T1-weighted images and iso- to hypo-signal intensity on T2-weighted images (the areas in hypo-signal correspond to collagenous fibroma). After contrast injection the enhancement of the mass is intense.

Typical histological features of solitary fibrous tumors consist of a combination of hypercellular and collagenous fibroma areas as well as a hemangiopericytoma-like vascular pattern. However, in case of disorganized pattern the diagnosis may be challenging because of similarities with other tumors with a hemangiopericytoma-like vascularization. Immunohistochemically, solitary fibrous tumors are positive for CD34 (almost 100%) and for bcl-2 (in 75–90% of

the cases). These two markers seem sufficient to diagnose solitary fibrous tumors [4,5].

About 15 to 20% of solitary fibrous tumors are malignant, particularly tumors above 10 cm. Histological features of malignancy include high cellularity, cytonuclear atypia, elevated mitotic activity (> 4 per 10 high-power fields) and tumor necrosis [6].

Solitary fibrous tumors have a potential for local recurrence, however cases of malignant degeneration have also been described. Therefore, surgical resection is the treatment of choice, and long-term follow-up is mandatory to detect local recurrence and distant metastases.

## Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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